



## CERTIFICATE OF ACCURACY



TO WHOM IT MAY CONCERN

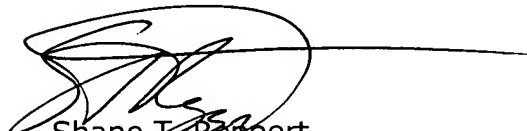
MultiLingual Solutions, Inc., at the request of Pitts & Brettian, P.C., prepared the attached certified English translation of the Japanese language Patent 02-161063, entitled "Outside Corner Structure", published June 20, 1990.

We confirm that the attached translation was prepared by our Senior Japanese Associate, a qualified translator who was carefully selected for this assignment based on a combination of native linguistic skill, relevant accreditations/certifications and experience.

We further certify that the translation is an accurate representation of the original text in terms of both content and tone.

Should you have any questions regarding this translation, please contact MultiLingual Solutions, Inc. directly at 301.424.7444.

Sincerely,

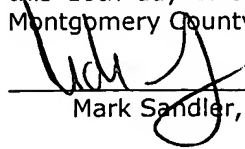


Shane T. Reppert  
Vice President

### Attachments

*Note: The attached certified translation bears our corporate logo as well as the initials of the signatory above*

Subscribed and sworn to before me  
this 10th day of December 2004, in  
Montgomery County, Maryland.



Mark Sandler, Notary Public

My commission expires: 11/19/07

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### Specification

#### 1. Title of the Invention

Outside corner structure

#### 2. Claims

(1) In the outside corners for clapboard profile drywall, two trapezoidal decorative pieces are joined in a near L-shape to form a decorative face. At the upper end of the decorative face, the areas of each trapezoidal decorative piece directly adjacent to the corner of the L extend upward, forming an anchoring member. The areas of each trapezoidal decorative piece that do not form the anchoring member, which include the edges of each piece, project outward to form connecting flanges. Starting outside corner pieces and middle outside corner pieces are utilized. In the starting outside corner pieces, the bottom edges of the lower end of the decorative face project inward to form bottom faces. The tips of the inwardly projecting bottom faces are bent upward into holding pieces. These form the holding member. The middle outside corner pieces have decorative faces, anchoring members, and connecting flanges similar to the starting outside corner pieces, in addition to linking members. At the lower end of the decorative face of the middle outside corner piece, the bottom edges project inward to form bottom faces. The sides of both bottom

faces fold inward to form connecting tabs, which forms the linking member. The outside corners of the clapboard profile drywall on the first course are held by the holding members of the starting outside corner piece, and are fixed to the wall base by its anchoring member. For subsequent courses, the connecting flanges of the outside corner piece on the lower course are clamped in place by the connecting tabs and held by the bottom face of the linking member of the middle outside corner piece above it. The anchor members are fixed into the wall base. These features characterize the outside corner structure.

#### 3. Detailed Description of the Invention

##### (Field of Industrial Application)

This invention forms outside corners for clapboard profile walls.

##### (Prior Art)

Previous outside corners used in the making of clapboard profile drywall are shown in Figure 7. Typically, as shown in Figure 7(a), the previous outside corner structures generally include an L-shaped decorative face b formed from near-trapezoidal decorative pieces b<sub>1</sub> and b<sub>2</sub>; anchoring member c formed in the upper portion of b<sub>1</sub> and b<sub>2</sub>; and outside corner a formed from holding member e and bottom face d, which is the lower portion of b<sub>1</sub> and b<sub>2</sub> bent into an L-shape.

After the dry wall is set out as shown in Figure 7(b), subsequent courses are fitted one at a time from the first course.

(Problems Solved by the Invention)

However, the outside corner structure described above contains a defect. As shown in Figure 2(a), when one, two, or multiple laps are formed in the decorative face of the drywall, the holding piece e of outside corner cannot be fitted to the lapped area.

(Means to Solve the Problems)

This invention provides features that remove that defect. Starting outside corner pieces have the following: anchoring members formed when the sections of the upper portions of the trapezoidal decorative faces adjacent to the corner of the L-shaped decorative faces extend upward; connecting flanges formed when the areas of each trapezoidal decorative piece that do not form the anchoring member, which include the edges of each piece, are projected outward; and holding members formed when the bottom edge of the decorative corner face project inward to form bottom faces, and the edges of the bottom faces are bent upward. This invention also includes middle outside corner pieces, which have decorative faces, anchoring members, and connecting flanges similar to the starting outside corner piece in addition to a linking member. The linking member is formed when the bottom edges of the decorative face are projected inward to form bottom faces as in the starting outside corner piece, and both sides of the bottom faces are folded inward into connecting tabs.

Further, the first course of the outside corner structure of the clapboard profile drywall utilizes the starting outside corner piece; the second course and above are fabricated using middle outside corner pieces. The successive corner pieces are linked together when the connecting flange of one is clamped into place by the connecting tab of the other. As a result, outside corners may be formed for drywall, even when there are multiple laps.

(Working Examples)

Below is a detailed explanation of the invention using the figures. Figure 1 describes the outward appearance of the outside corner structure. The letter A represents the drywall panels (subsequently referred to as "wall panels"), B is the starting outside corner piece, and C is the middle outside corner piece. Wall panel A, as shown in Figure 2(a), has a clapboard profile. Decorative face 2 and the tongue and groove members are formed from surface material 1, which is made of, for example, one of the following varieties of metal sheet (including flat and embossed sheet): finished steel sheet, zinc-nickel alloy galvanized steel sheet, aluminum-zinc alloy galvanized steel sheet (product names: Galfan, Galvarium, Superzinc), aluminum sheet, aluminum alloy sheet, copper sheet, steel cladding, or damping steel sheet. Decorative face 2 and the tongue and grooves can also be made from synthetic resin sheet. The area behind

surface material 1 is filled with core material 5, which can be synthetic resin foam, sheetrock, rock wool board, glass wool board, sheathing board, wood wool board, or cement. Decorative face 2 and the tongue and groove members may, as needed, be formed from a sandwich panel, which has rear surface 6 (various sheet-form materials) attached to the back of core material 5, or, while not illustrated, from inorganic board made from extrusion or batch molded cement, concrete, clay, GRC, or ALC.

The decorative face 2 of wall panel A may have one, two, or multiple laps (a double lap is shown in the figure), or may form laps during installation to the wall base. The starting outside corner piece B is as shown in Figure 2(b), and is made mainly from the aforementioned metal or synthetic resin sheets. More specifically, the starting outside corner piece contains decorative face 7, which is made of trapezoidal decorative pieces 7a and 7b; anchoring member 8, which is the areas of the upper ends of decorative pieces 7a and 7b adjacent to the corner that extend upward; connecting flanges 9, which are the portions of the upper ends of decorative pieces 7a and 7b that do not form the anchoring member (which should include at least the edges of the decorative pieces) that project outward. In addition, at the bottom edge of decorative face 7, the bottom edges of decorative pieces 7a and 7b project inward to form bottom faces 11. The tips of bottom faces 11 then bend upward to form holding piece 12. The bottom faces 11 and holding piece 12 form the holding member 10. In the outside corner structure, starting outside corner piece B forms the outside corner for the starter strip. As shown in Figure 3(a), decorative face 7 encloses the ends of wall panel A and the gaps between successive wall panels. In addition, holding member 10 encloses the bottom edge of wall panel A and serves as an anchoring point at the bottom edge of starting outside corner piece B. In addition, anchoring member 8 (in the upper portion of starting outside corner piece B) can be fixed with a fastener such as a nail in a position where it won't be outwardly exposed. 8a is the aperture for the fastener and can be configured as needed. In addition, because the connecting flange 9 is clamped in place by the connecting tab of the subsequent middle outside corner piece, it acts as an anchor for the bottom edge of the middle outside corner piece and prevents rain penetration at the lapped portion of wall panel A. The middle outside corner pieces C form the outside corner structure after the first course formed by the starting outside corner piece, and as shown in Figure 2(a), have decorative face 13, anchoring member 14, fastener aperture 14a, and connecting flanges 15, all similar to those in the starting outside corner piece. Further, at the lower end of decorative face 13, the bottom edges of both decorative pieces 13a and 13b project inward to form bottom faces 17. The sides of both bottom faces 17 are folded inward to form connecting tab 18. These form linking member 16. The decorative face 13, anchoring

member 14, and connecting flanges 15 have the same capabilities as the decorative face 7, anchoring member 8, and connecting flanges 9 of the starting outside corner piece. Also, bottom face 17 covers the laps in wall panel A and the connecting flanges of the starting outside corner piece in the first course, or the connecting flanges 15 of other middle outside corner pieces. In addition, it aids in repelling rain from each connecting flange 9 or 15 while improving design as well.

Further, as shown in Figure 3(b), connecting tab 18 clamps the sides of connecting flanges 9 and 15 (connecting flange 9 in the figure). The connecting flanges are covered by bottom face 17. It also fixes the bottom edge of other middle outside corner pieces C. Figure 3(b) illustrates how the starting outside corner piece connects to the middle outside corner piece, but the middle outside corner pieces connect to each other in the same way. In this manner, it is possible to fix the middle outside corner pieces without involving the connecting members of wall panel A, and form a wall with wall panel A, which may have numbers of laps in its decorative face 2.

The above explanation is only one example of actual use of this invention, the outside corner structure. It is also possible to utilize the starting outside corner piece B and middle outside corner pieces C as shown in Figures 4(a) to (c) through Figures 6(a) to (f). Figures 4(a) to (c) show variants of the holding member 10 of the starting outside corner piece B designed to strengthen its hold on each wall panel A. In addition, Figures 5(a) to (h) show variants of anchoring members 8 and 14. These variants reinforce the strength of each anchoring member 8 or 14 and allow variation when installing the fastener. Figures 6(a) through (f) show variants of connecting flanges 9 and 15. Moreover, as the perforated lines in Figure 3(b) illustrate, it is possible to install a water-repellant sealant 19 such as caulking or [packing] on the underside of decorative face 7 or 13.

#### (Effects of the Invention)

As stated above, only the anchoring of the bottom edge of the starting outside corner piece depends upon the wall in this invention. Further, multiple courses can be installed due to the anchoring members and the fixing performed by the linkage between the starting outside corner piece and the subsequent middle outside corner piece. Also, separation and detachment may be prevented because each starting outside corner piece and middle outside corner piece are fastened at both top and bottom. Furthermore, the connecting flanges also repel rain, making this invention unparallel resistance. These results characterize this invention. JP-2-161063-A (3)

#### 4. Brief Description of the Drawings

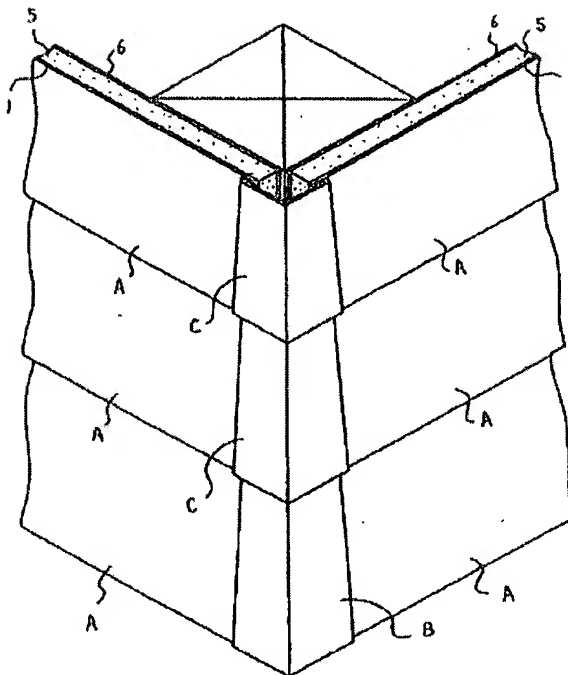
Figure 1 shows the outer appearance of the parts used in the outside corner structure. Figures 2(a) to (c) represent the drywall, starting outside corner piece, and middle outside corner pieces used in this invention. Figures 3(a) and (b) illustrate the parts of the above-

mentioned outer corner structure, while Figures 4(a) to (e) through Figures 6(a) to (f) show variants of the starting outside corner pieces and middle outside corner pieces. Figures 7(a) and (b) describe the prior technology.

A...drywall, B...starting outside corner piece,  
C...middle outside corner piece

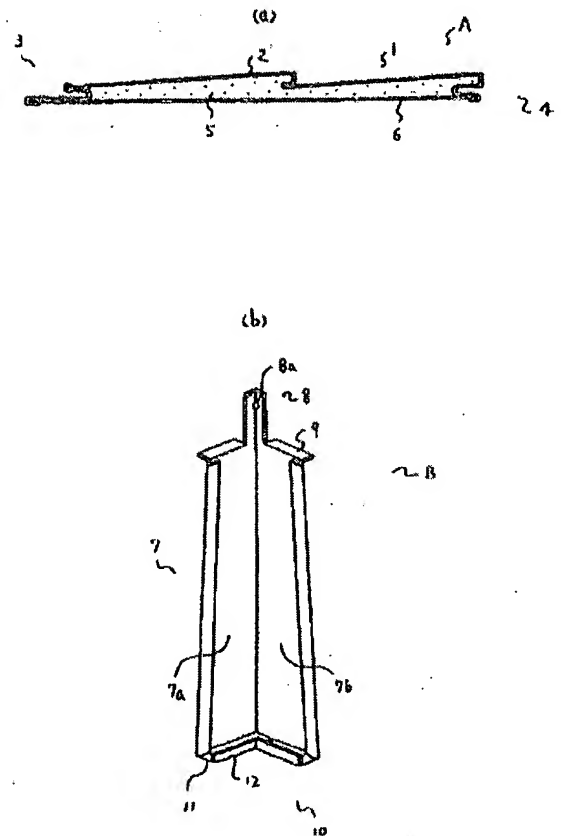
Assignee: IG Technology Research Co., Ltd. [Seal]

第 1 図



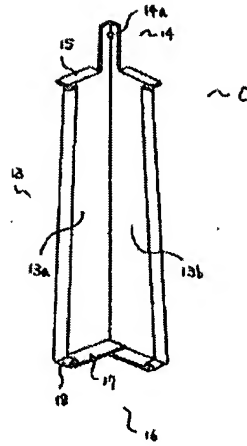
A...乾式壁材  
B...スタート用出隅  
C...中間用出隅

第 2 図

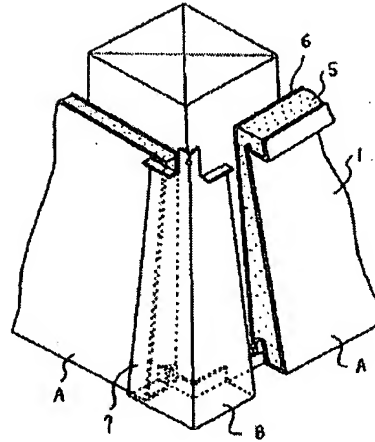


第1図	Figure 1
A...乾式壁体	A: Drywall
B...スタート用出隅	B: Starting outside corner piece
C...中間出隅	C: Middle outside corner piece
第2図	Figure 2

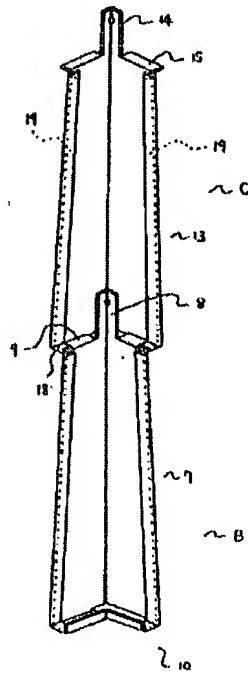
第 2 図  
(c)



第 3 図  
(a)

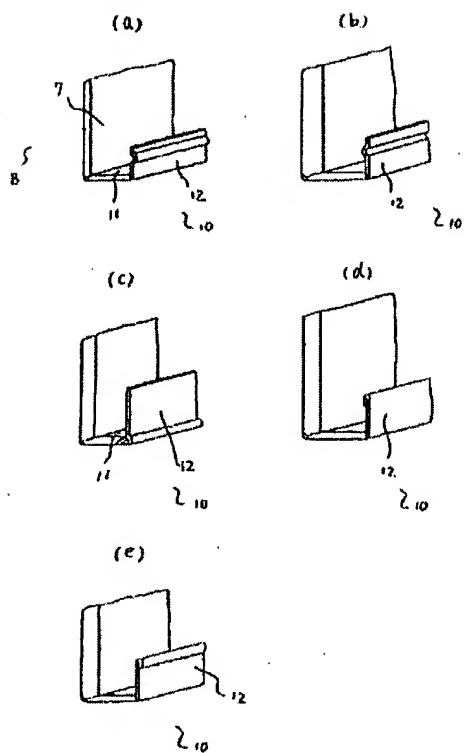


第 3 図  
(b)

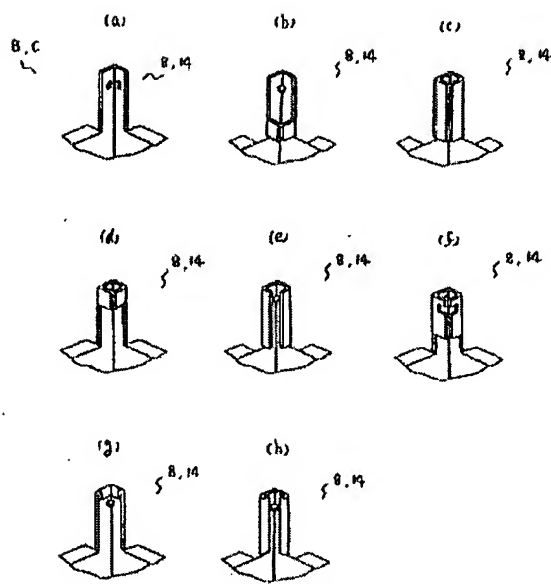


第2図	Figure 2
第3図	Figure 3

第 4 図



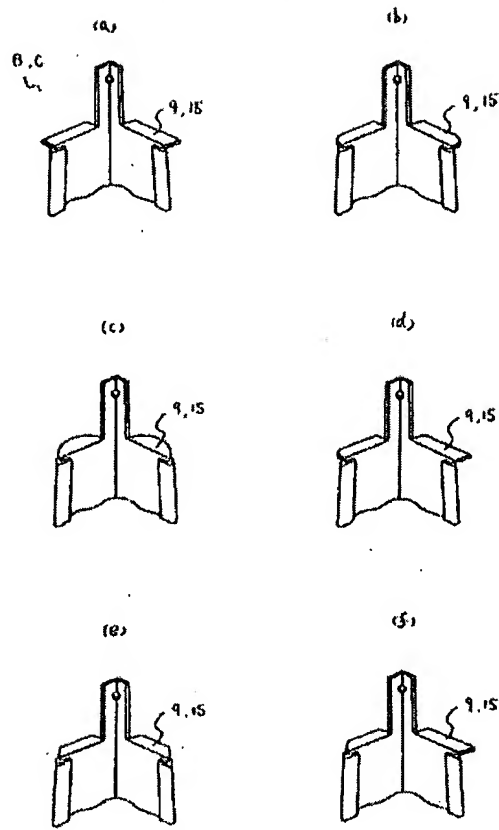
第 5 図



第4図	Figure 4
第5図	Figure 5

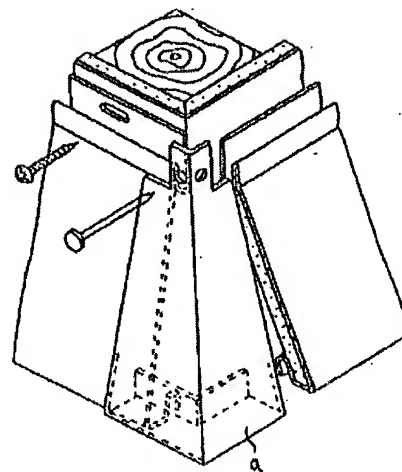
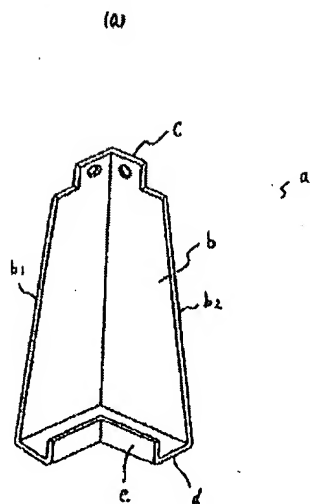
第 6 図

JP-2-161063-A (7)



第 7 図

第 7 図



第6図	Figure 6
第7図	Figure 7